CALFED Science Program Briefing

Can propagating delta smelt at a hatchery help save the species?

The construction of dams and large water diversions, extensive introduction of non-native fishes, and water pollution have impacted many fish species and populations endemic to western river systems. Not surprisingly, fishery managers are increasingly raising native fishes in captivity, often with the hope of reintroducing them to habitats from which they have disappeared. Can this work?

Delta smelt (above) and other fish species native to the Bay-Delta are threatened and/or endangered. Some species face extinction.

Distinguished scientists from around the western U.S. who have studied artificial propagation of threatened and endangered species discussed this question at a recent CALFED Science Program workshop and concluded the following:

1. Artificial propagation can be an extremely important short-term means of providing insurance against extinction.
2. Artificial propagation will reduce the genetic fitness of the propagated fish compared to wild fish. This increment of reduced fitness will increase with every hatchery generation.
3. Hatcheries for threatened and endangered fish "buy time" to fix environmental problems, but they do not substitute for fixing these problems.

In conclusion: the use of hatcheries to artificially propagate threatened and endangered fish species in the California Delta can provide short-term insurance against extinction, but production for reintroduction must be coupled with vigorous habitat remediation and restoration to improve conditions in the natural environment.

Photo by Bradd Baskerville-Bridges, University of California, Davis

Experience with fish hatcheries, such as this one at the Byron UC Davis Fish Conservation and Culture Laboratory, leads to the conclusion that managers seeking to boost fish populations must carefully weigh the potential benefits and drawbacks associated with artificial propagation.

CALFED SCIENCE PROGRAM

On July 24, 2008, the CALFED Science Program hosted a workshop titled "The Use of Artificial Propagation as a Tool for Central Valley Salmonid and Delta Smelt Conservation." The CALFED Science Program's mission is to integrate science into every aspect of the CALFED Bay-Delta Program. The Science Program's goal is to establish the best scientific information possible to guide decisions and evaluate actions critical to the CALFED Program's success.

For more information, please visit the CALFED Science Program website (www.science.calwater.ca.gov) or contact CALFED Lead Scientist, Dr. Clifford Dahm at 916-445-0463.